

**IN THE CLAIMS:**

Please amend the claims to read as follows:

1. (currently amended) A system for programming a plurality of agents self-organizing autonomous control units ~~onto a forming~~ a distributed control system  
5 being configured to control a plurality of controllable devices for performing a process, the system comprising:

a terminal that displays a graphical user interface having a plurality of images including:

10 a first image showing a plurality of selectable templates ~~and at least~~, the terminal providing a first mechanism by which first user input signals can be received concerning the templates, wherein the templates include agent-type programming software for controlling self-organizing autonomous control units that represent controlled devices for the purpose of organization; and

15 a second image showing a representation of the controllable devices ~~and at least~~, the terminal providing a second mechanism by which second user input signals can be received concerning associations between the templates and the representation of the controllable devices; and a processing device that generates executable programming to be performed  
20 by the distributed control system based upon the templates and the associations, wherein the executable programming at least partly governs agent self-organizing-type behavior of the distributed control system.

2. (original) The system of claim 1, wherein the plurality of images includes a third image showing a plurality of libraries of templates and at least a third mechanism by which an additional user input signal can be received concerning a  
5 selected one of the plurality of libraries.

3. (original) The system of claim 1, wherein at least one of the first image, the second image and a third image shows a third mechanism by which additional user input signals can be received concerning modifications of the templates.

4. (currently amended) The system of claim 1, wherein at least one of the first, second and third images shows agent template information selected from the group consisting of agent self-organizing autonomous control units-related properties, agent self-organizing autonomous control units-related types, agent self-organizing autonomous control units-related abbreviations, agent self-organizing autonomous control units-related variables, agent self-organizing autonomous control units-related tags, agent self-organizing autonomous control units-related factory classes, and relationships among agents self-organizing autonomous control units.

5. (original) The system of claim 1, wherein the first image also shows control programming and at least a third mechanism by which additional user input signals can be received concerning modifications of the control programming.

6. (original) The system of claim 5, wherein the control programming is ladder logic code, and wherein at least one of the first image and a third image further shows at least one of variables and tags employed in the ladder logic code.

7. (currently amended) The system of claim 1, wherein the plurality of images includes a third image showing the agent-type programming- software for controlling self-organizing autonomous control units corresponding to the templates and at least a third mechanism by which additional user input signals can be received concerning modifications of the agent-type programming- software for controlling self-organizing autonomous control units.

5. (currently amended) The system of claim 7, wherein at least some of the agent-type programming- software for controlling self-organizing autonomous control units is written in C++ and includes program instructions to generate messages in a language selected from the group consisting of JDL, XML, and KQML.

9. (currently amended) The system of claim 8, wherein the agent-type  
programming software for controlling self-organizing autonomous control units  
further includes program instructions to wrap the messages in a FIPA ACL protocol,  
5 and wherein the third image further shows at least one of strings and tags employed  
in the agent-type programming software for controlling self-organizing autonomous  
control units.

10. (original) The system of claim 1, wherein the plurality of images includes  
a third image showing available controllers of the distributed control system and a  
third mechanism by which additional user input signals can be received concerning  
5 assignments of the templates to at least some of the available controllers.

11. (original) The system of claim 10 wherein with respect to the third image  
or a fourth image, when a further user input signal is received indicating a particular  
one of the available controllers, those of the templates that have been assigned to the  
5 one controller are highlighted.

12. (original) The system of claim 1, wherein the plurality of images includes  
a third image showing available controllers, available networks and available chassis  
components.

13. (original) The system of claim 1, wherein the processing device performs  
a compiling process during the generating of the executable programming.

14. (original) The system of claim 1, wherein the processing device performs  
an instantiation process upon the templates during the generating of the executable  
programming.

15. (original) The system of claim 1, wherein the terminal is part of a human-  
machine interface that is coupled to the distributed control system by way of a  
communication link.

16. (original) The system of claim 15, wherein the human-machine interface is a personal computer and the communication link is a network.

17. (original) The system of claim 1, further comprising a means for storing information on which the executable programming is stored prior to being downloaded onto controllers of the distributed control system.

18. (original) The system of claim 1, wherein the executable programming is stored upon a memory device selected from the group consisting of a disk, a cartridge, a card, and a chip, and wherein the executable programming is provided to the distributed control system when the memory device is coupled to a component of  
5 the distributed control system.

19-23 (cancelled)

24. (currently amended) A method of programming a distributed control system, the method comprising:

providing a first editor interface displaying templates of at least one library;  
receiving first user instructions to select at least some of the templates from a  
5 library using the first editor interface, wherein each of the templates includes agent-related programming software for controlling self-organizing autonomous control units that are present controlled devices in the process of self -organization;  
providing a second editor interface that displays a representation of a facility having a plurality of controllable devices;  
10 receiving second user instructions assigning the selected templates to portions of the representation corresponding to the respective controllable devices;  
providing a third editor interface that displays a representation of a plurality of controllers of the distributed control system; and  
receiving third user instructions assigning each of the selected templates to a  
15 respective one of the controllers.

25. (original) The method of claim 24, further comprising receiving additional user instructions to modify the selected templates.

26. (original) The method of claim 24, further comprising providing an additional editor interface that displays available controllers, available networks, and available chassis components.

27-31 (cancelled)